Day 14 Individual Activity
Amrit Singh, Period 3 RS3

5.5) C - Allows comparisons between the means of multiple populations instead of just two.

5.9) Randomization minimizes bias, allows cause-and-effect reasoning, and ensures that statistical inference is valid under a probability framework.

5.13)
Major: Categorical, many categories -- ANOVA (more than two groups).
Sex (Male/Female): Categorical, two categories -- Two-sample t-test.
Class year (first–fourth): Categorical, five categories -- ANOVA.
Political inclination (liberal/moderate/conservative): Categorical, three categories -- ANOVA.
Sleep time last night: Quantitative.
Study time last week: Quantitative.
Body mass index: Quantitative.
Money spent on textbooks: Quantitative

5.15)
  a. Explanatory: Font type (Times, Courier, Helvetica, Comic Sans). Response: Final exam score.
  b. Randomized experiment (fonts randomly assigned to students).
  c. Observations independent due to random assignment.

5.16)
  a. Explanatory: Dog food type (salmon, chicken, beef). Response: Average hours slept per 24 hours (energy proxy).
  b. Randomized experiment (diets randomly assigned).
  c. Observations independent due to random assignment.

5.17)
  a. Units: The 40 students.
  b. Treatments: The four fonts.
  c. Balanced design: 10 students per font.

5.18)
  a. Units: The 45 Border Collies.
  b. Treatments: The three dog foods.
  c. Balanced design: 15 dogs per food.